

**UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

ECOFACITOR, INC.,

Plaintiff,

v.

ECOBEE, INC.

Defendant.

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Case No. 6:21-cv-00428-ADA

JURY TRIAL DEMANDED

DEFENDANT ECOBEE, INC.'S OPENING CLAIM CONSTRUCTION BRIEF

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I. Introduction

EcoFactor, Inc. (“EcoFactor” or “Plaintiff”) alleges that ecobee, Inc. (“ecobee” or “Defendant”) infringes four patents relating to HVAC control systems: namely, U.S. Patent Nos. 8,740,100 (the “’100 Patent”), 8,751,186 (the “’186 Patent”), 9,194,597 (the “’597 Patent”) and 10,584,890 (the “’890 Patent”). Three of these patents – the ’100 patent, the ’597 patent, and the ’890 patent – have claim terms that are ambiguous and fail to inform a person of skill in the art of the scope of the claims with reasonable certainty. For instance, claims 1 and 9 of the ’100 patent require “evaluating” parameters relating to the operation of a ventilation system, but neither the claims nor the specification provide any guidance or instruction as to what “evaluation” is to be performed or how to perform it. Claim 9 of the ’597 patent requires calculating scheduled programming based on “the predicted rate of change,” but the phrase “the predicted rate of change” has no antecedent basis that identifies what rate of change is to be predicted. And the ’890 patent requires a circuit to “protect a compressor from rapid cycling” (claim 1) and a “performance characteristic” to be generated (claim 17), but provides no guidance as to the meaning of either claim limitation. Accordingly, for the reasons set forth below, each of these terms is indefinite.

II. Legal Standard Regarding Indefiniteness

Section 112 of the patent statute requires that “a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 910 (2014); 35 U.S.C. § 112. “It cannot be sufficient that a court can ascribe *some* meaning to a patent’s claims.” *Nautilus*, 572 U.S. at 911 (emphasis in original). Rather, claims must provide “clear notice of what is claimed, thereby ‘appris[ing] the public of what is still open to them.’” *Id.* at 909–10 (alteration in original) (citation omitted). Claim language that “fails to provide an objective standard for determining the scope of the invention and instead relies on the unrestrained,

subjective opinion of the person practicing the invention” is indefinite and renders the claim invalid. *Prolifiq Software Inc. v. Veeva Sys. Inc.*, No. C 13-03644 SI, 2014 WL 3870016, *5 (N.D. Cal. Aug. 6, 2014).

Further, claim terms that lack antecedent basis within the claim may be indefinite “where such basis is not otherwise present by implication or the meaning is not reasonably ascertainable.” *Halliburton Energy Servs., Inc. v. M-I LLC*, 514 F.3d 1244, 1249 (Fed. Cir. 2008) (citation omitted). “The fact that [the patent holder] can articulate a definition supported by the specification . . . does not end the inquiry. Even if a claim term’s definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope.” *Id.* at 1251.

III. Disputed Terms of the ’100 Patent

A. Background

The ’100 patent issued June 3, 2014, from an application filed on May 5, 2010. The ’100 patent is directed to systems and methods “for reducing the usage of a ventilation system.” Ex. 1¹ (’100 patent) at Abstract. In the Background of the Invention, the patent explains that “rapid cycling of HVAC systems is both annoying to occupants and more stressful to the mechanical systems than less frequent cycling is.” *Id.* at 1:48-53. Thus, it was common practice for thermostats to implement a “hysteresis band or deadzone...to hold the desired setpoint range within a range of +/-1 degree Fahrenheit.” *Id.* at 1:60-62. The ’100 patent also explains that one issue with the hysteresis band is that “the hysteresis band only protects the system against rapid automatic cycling,” and “will not prevent a user from rapidly changing settings.” *Id.* at 2:18-24. Thus, “most electronic systems approach this [by] enforcing [] a compressor delay—that is,

¹ Exs. 1-3 refer to exhibits to the Declaration of Steven M. Lubezny, filed concurrently.

whenever the compressor is switched off, the thermostat prevents it from restarting for a set interval.” *Id.* at 2:25-31.

The ’100 patent is directed to a system and method comprising a “thermostatic controller” that “has at least two settings for the delay occurring between turning the ventilation system off and then turning the system back on.” *Id.* at Abstract. One setting is “for a first interval” and the second setting is “for a second interval that is longer than the first interval.” *Id.* A processor is then used to “determine whether to adopt the first interval or the second interval.” *Id.*

B. The “Evaluating” Limitations In Claims 1 and 9 are Indefinite

Claim Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
“evaluate one or more parameters” (Claim 1) / “evaluating ...one or more parameters relating to the operation of the said ventilation system” (Claim 9)	No construction necessary; plain and ordinary meaning	Indefinite

Independent claims 1 and 9 of the ’100 patent are directed to systems and methods for “reducing the usage of a ventilation system” (claim 1) and “optimizing the delay enforced by a thermostatic controller” (claim 9). Both of these claims recite steps requiring an “evaluation” to be performed. For instance, claim 1 requires a processor that is configured to “*evaluate* one or more parameters including at least the outside temperature measurements and the predicted rate of change.” (emphasis added). Claim 9 requires the step of “*evaluating*, with at least one computer processor, one or more parameters relating to the operation of the said ventilation system...wherein evaluating the one or more parameters comprises evaluating at least the outside temperature measurements and the predicted rate of change.” (emphasis added). The claims, however, provide absolutely no indication as to what kind of evaluation is to be performed on the recited parameters, let alone how to perform such an evaluation. A person of ordinary skill reading the claims would

therefore have no reasonable certainty as to the scope of the claimed invention. *See* Declaration of David M. Auslander (“Auslander Decl.”) at ¶37.

The specification likewise provides no guidance. Figure 7 of the patent purports to provide “a flowchart illustrating the steps required to initiate a compressor delay adjustment event.” Ex. 1 (’100 patent) at 8:39-40. The patent states that if a specific home is subscribed to participate in compressor delay events, “in step 1108 the server retrieves the parameters needed to specify the compressor delay routine,” “in step 1110 the appropriate compressor delay settings are determined,” and “in step 1112 the chosen settings are communicated to the thermostat.” *Id.* at 8:40-57. Notably absent, however, is a description or explanation of any kind of evaluation of parameters relating to the operation of the ventilation system. *See* Auslander Decl. at ¶¶38-39. Indeed, other than in the Abstract (which simply parrots the claim language), the words “evaluate” and “evaluating” *do not appear anywhere in the specification*. *See* Auslander Decl. at ¶39. Thus, just like the claim language, the specification gives zero guidance as to what kind of evaluation must be performed or how to perform it.

Accordingly, for the reasons above, the “evaluating” limitations of claims 1 and 9 of the ’100 patent are indefinite because they “fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 572 U.S. at 901.

IV. Disputed Terms of the ’597 Patent

A. Background

The ’597 patent issued on November 24, 2015, from an application filed on November 18, 2013. The patent is directed to a process for “incorporating manual changes to the setpoint for a thermostatic controller into long term programming of the thermostatic controller.” Ex. 2 (’597 patent) at Abstract. The ’597 patent explains that “the advantages of a programmable thermostat depend on the match between the preferences of the occupants and the actual setting employed.”

Id. at 1:45-47. Thus, the '597 patent states that it would be desirable to “have a means for adapting to signaling from occupants in the form of manual temperature changes and incorporating the information contained in such gestures into long-term programming.” *Id.* at 2:9-18.

The '597 patent describes a system and method that identifies manual inputs to a thermostat and performs adaptive programming of the thermostat. The system “compares the actual setpoint at a given time for the thermostatic controller to an expected setpoint for the thermostatic controller in light of the scheduled programming.” *Id.* at Abstract. “A determination is then made as to whether the actual setpoint and the expected setpoint are the same or different” and “at least one rule is then applied for the interpretation of the manual change in light of the previously recorded setpoint data.” *Id.*

B. The Term “the predicted rate of change” in Claim 9 is Indefinite

Claim Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
the predicted rate of change	“rate of change”: difference between inside temperature measurements divided by the span of time between the measurements Remainder of phrase: No construction necessary; plain and ordinary meaning	Indefinite

The term “the predicted rate of change” in claim 9 of the '597 patent is indefinite because it lacks antecedent basis and does not “inform those skilled in the art about the scope of the invention with reasonable certainty.” *Nautilus*, 572 U.S at 910.

Claim 9 requires the step of “calculating scheduled programming of setpoints in the thermostatic controller based on the predicted rate of change.” The claim, however, does not recite any “predicted rate of change” to which the recited “*the* predicted rate of change” could be

referencing. *See* Auslander Decl. at ¶43. Thus, there can be no legitimate dispute that the phrase lacks antecedent basis on its face. Nor is the meaning of this term ascertainable from the claim, as nothing in claim 9 makes clear what rate must be predicted. *See* Auslander Decl. at ¶43.

Plaintiff's assertion that "the predicted rate of change" refers to a predicted "difference between *inside temperature measurements* divided by the span of time between the measurements" is not supported by the claim language. Plaintiff appears to base its proposed interpretation upon a different limitation in claim 9 which recites using "stored data to predict *changes in temperatures inside the structure* in response to at least changes in outside temperatures." But this limitation refers to a separate prediction of a *change* in temperature, and not to the *rate* prediction that is at issue here. *See* Auslander Decl. at ¶44. Indeed, the fact that certain claims of the '597 patent recite "us[ing] the stored data to *predict a rate of change of temperatures inside the structure*" (claim 17) while others recite "using the stored data to *predict changes in temperatures* inside the structure" (claims 1 and 9) make clear that a rate prediction is different in meaning and scope from the prediction of a temperature change. So, claim language referring to a separate predicted change in temperatures inside the structure does not provide an antecedent basis for, or otherwise clarify the meaning of, "the predicted *rate* of change" that is to be used for "calculating scheduled programming." *See* Auslander Decl. at ¶44; *see also SOL IP, LLC v. AT&T Mobility LLC*, No. 2:18-CV-00526-RWS-RSP, 2020 WL 60141, at *9–12 (E.D. Tex. Jan. 5, 2020) (finding that an antecedent basis is not supported by terms whose meanings are different in scope).

Accordingly, for the reasons above, the meaning of the term "the predicted rate of change" within claim 9 cannot be reasonably ascertained and so it is indefinite. *See In re Packard*, 751 F.3d 1307, 1310, 1314 (Fed. Cir. 2014) (per curiam) (affirming finding of indefiniteness based on limitations that "lacked an antecedent basis"); *SOL IP, LLC*, 2020 WL 60141, at *9–12 (finding the terms "the second set of bits" and "the third set of bits" to be indefinite because they lacked

antecedent basis); *Personalized Media Communs., LLC v. Google LLC*, No. 2:19-cv-00090-JRG, 2020 WL 1666462, at *17–18 (E.D. Tex. Apr. 3, 2020) (finding the term “said identified storage locations” to be indefinite because “[t]here is no antecedent reference to ‘storage locations’ or ‘identified storage locations’.”).

V. Disputed Terms of the ’890 Patent

A. Background

The ’890 patent issued March 10, 2020, from an application filed on April 3, 2019. The ’890 patent states that the invention “comprise[s] systems and methods for using the geographic location of networked consumer electronic devices as indications of occupancy of a structure for purposes of automatically adjusting the temperature setpoint on a thermostatic HVAC controller.” Ex. 3 (’890 patent) at Abstract. Independent claim 1 of the ’890 patent requires processors that are configured, among other things, to receive radio frequency signals from a location-aware mobile device, automatically adjust a temperature value based on geo-positioning data from the mobile device, and initiate a cooling or heating cycle for an HVAC system when the geo-positioning data indicates that a building is unoccupied. Claim 1 also requires additional limitations such as electronic circuitry configured to generate and communicate usage metrics and a compressor delay circuit.

B. The Term “protect the compressor from rapid cycling” in Claim 1 is Indefinite

Claim Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
protect the compressor from rapid cycling	No construction necessary; plain and ordinary meaning	Indefinite

Claim 1 of the ’890 patent requires “a compressor delay circuit configured to delay the start or stop of a compressor for the HVAC system and protect the compressor from rapid cycling.” In other words, the compressor delay circuit must meet two requirements: (i) it must delay the start

or stop of a compressor, and (ii) it must also protect the compressor rapid cycling. As to this second requirement, however, the claim language provides no explanation of when a compressor is considered to be “protected” from rapid cycling or how to assess whether such protection is occurring. *See* Auslander Decl. at ¶49. The mere presence of the referenced “delay” cannot also be sufficient to constitute the “protection,” as the claim language separately requires both delay and protection.

The specification provides no clarity on these issues. The specification merely states that “[a]n additional way in which an embodiment of the instant invention can reduce energy consumption with minimal impact on comfort is to vary the turn-on delay enforced by the thermostat after the compressor is turned off” and that “[c]ompressor delay is usually used to protect compressors from rapid cycling, which can physically damage them.” Ex. 3 (’890 patent) at 19:10-15. But like the claim language, the specification provides nothing more than a vague description of the intended goal of the functionality. The specification provides no guidance on how the compressor delay circuit is to be configured to achieve the claimed protection, let alone how to discern when a compressor is considered protected from rapid cycling as opposed to a compressor that is not protected from rapid cycling. *See* Auslander Decl. at ¶50.² As a result, a person of skill in the art would not be able to ascertain the scope of the claimed invention with reasonable clarity.

² The only specific details in the ’890 patent relating to rapid cycling protection are in the “Background of the Invention” section, which explains that it was well known to utilize a “hysteresis zone” that is “frequently set at +/- 1 degree Fahrenheit” to “permit the temperature as seen by the thermostat to vary above and below the setpoint to prevent the HVAC system from constantly and rapidly cycling on and off.” Ex. 3 (’890 patent) at 2:5-18. As Dr. Auslander, explains, however, a hysteresis zone relates to the amount by which the temperature is allowed to vary, not a time delay. *See* Auslander Decl. at ¶50. So, this description likewise does not inform one of ordinary skill in the art as to how to discern when a “compressor delay circuit” has been configured to “protect the compressor from rapid cycling,” as set forth in the ’890 claims. *Id.*

Accordingly, the term “protect the compressor from rapid cycling” in claim 1 of the ’890 patent is indefinite.

C. The Term “performance characteristic” in Claim 17 is Indefinite

Claim Term	Plaintiff’s Proposed Construction	Defendant’s Proposed Construction
performance characteristic	No construction necessary; plain and ordinary meaning	Indefinite

The term “performance characteristic” in dependent claim 17 of the ’890 patent is also indefinite because it does not “inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus*, 572 U.S. at 901. The only mention of a “performance characteristic” in the ’890 patent is in the claims. *See* Auslander Decl. at ¶54. Claim 17 recites a “fifth data parameter generated based at least in part on a previous operation of the HVAC system” that includes “at least one performance characteristic of the HVAC system.” However, this description provides no information regarding what qualifies as a performance characteristic, what a “performance characteristic” represents, or how it is “generated.” *See* Auslander Decl. at ¶55.

The specification of the ’890 patent similarly sheds no light on what constitutes a “performance characteristic,” or how to generate, calculate, use, or analyze it. *See* Auslander Decl. at ¶54. In fact, the specification makes no mention of the term “performance characteristic” at all.

Accordingly, the term “performance characteristic” as recited in claim 17 of the ’890 patent is indefinite.

VI. Conclusion

For the foregoing reasons, Defendant respectfully requests that the Court adopt its proposed claim constructions, and find that the above-identified limitations in the ’100, ’597 and ’890 patents are indefinite.

Dated: January 11, 2022

Respectfully submitted,

/s/ Timothy J. Carroll
(with permission by Jennifer P. Ainsworth)

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CERTIFICATE OF SERVICE

The undersigned certifies that the foregoing document was filed electronically in compliance with Local Rule CV-5(a). As such, this motion was served on all counsel who have consented to electronic service, Local Rule CV-5(a)(3), on this the 11th day of January, 2021.

/s/ Jennifer P. Ainsworth
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